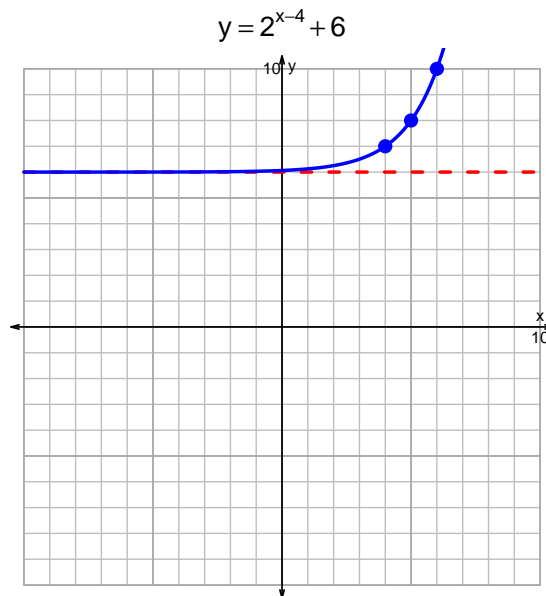
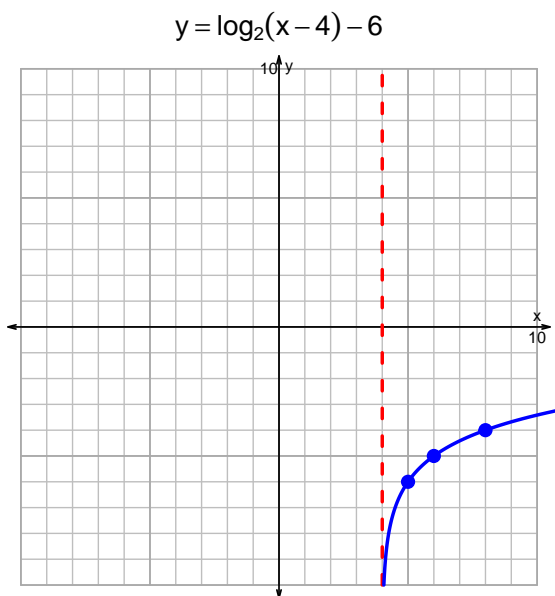


Name: \_\_\_\_\_

Date: \_\_\_\_\_

## s18QUIZ: EXP LOG (SLTN v202)

1. Graph  $y = \log_2(x - 4) - 6$  and  $y = 2^{x-4} + 6$  on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-11 = \left(\frac{-7}{5}\right) \cdot 2^{3t/4}$$

Divide both sides by  $\frac{-7}{5}$ .

$$\frac{11 \cdot 5}{7} = 2^{3t/4}$$

Take log, base 2, of both sides.

$$\log_2 \left( \frac{11 \cdot 5}{7} \right) = \frac{3t}{4}$$

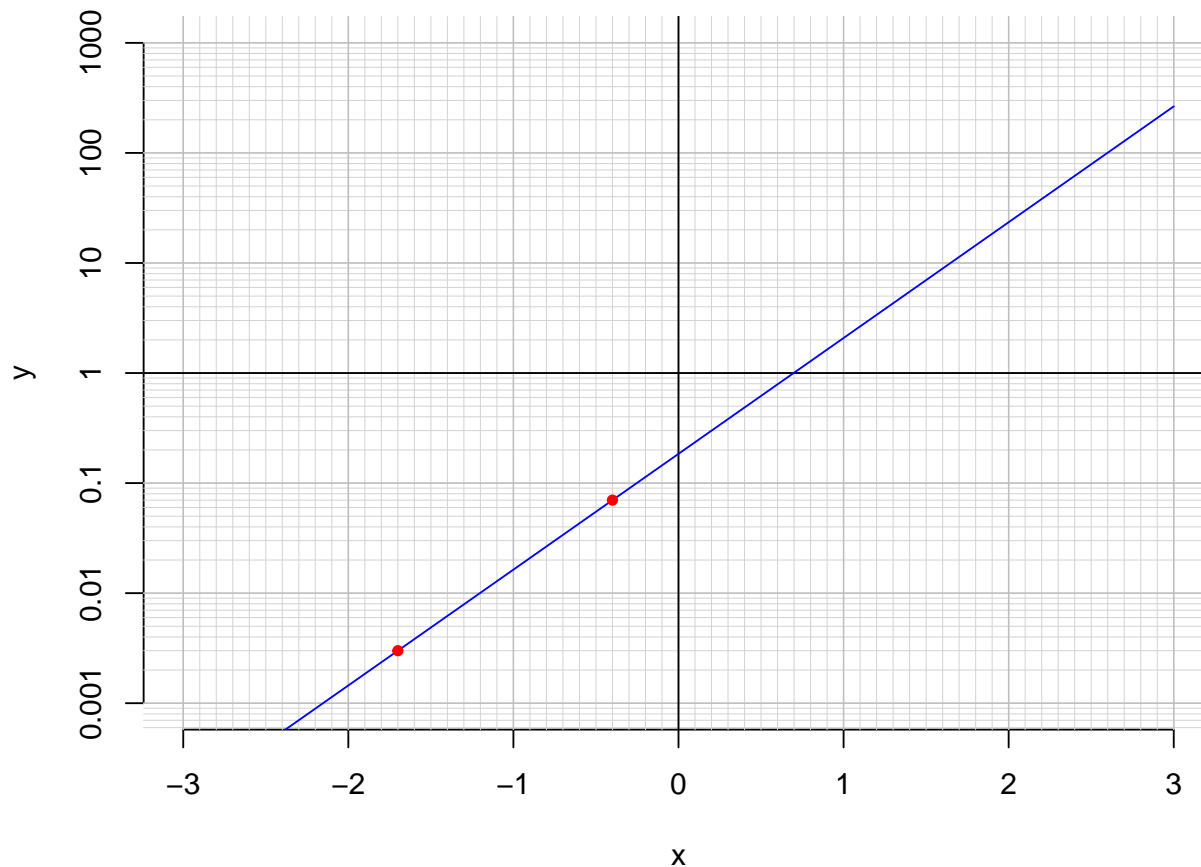
Divide both sides by  $\frac{3}{4}$ .

$$\frac{4}{3} \cdot \log_2 \left( \frac{11 \cdot 5}{7} \right) = t$$

Switch sides.

$$t = \frac{4}{3} \cdot \log_2 \left( \frac{11 \cdot 5}{7} \right)$$

3. An exponential function  $f(x) = 0.185 \cdot e^{2.42x}$  is graphed below on a semi-log plot.



- a. Using the plot above, evaluate  $f(-1.7)$ .

$$f(-1.7) = 0.003$$

- b. Express  $f^{-1}(x)$ , the inverse of  $f$ .

$$f^{-1}(x) = \frac{1}{2.42} \cdot \ln\left(\frac{x}{0.185}\right)$$

- c. Using the plot above, evaluate  $f^{-1}(0.07)$ .

$$f^{-1}(0.07) = -0.4$$